

### **REMARKS**

The following is intended as a full and complete response to the Office Action mailed on October 23, 2003. Claims 1-6 and 11 were examined, and claims 7-10 were withdrawn. The Examiner rejected claim 11 under 35 U.S.C. § 102(b) as anticipated by Deacon. The Examiner rejected claims 1-3 and 5-6 under 35 U.S.C. § 103(a) as being obvious in view of Deacon in combination with Kashihara. The Examiner rejected claim 4 under 35 U.S.C. § 103(a) as being obvious in view of Deacon and Kashihara in further combination with Merry.

#### **Rejections under 35 U.S.C. § 102**

In paragraph 5 of the Office Action, the Examiner rejected claim 11 as being anticipated by Deacon (US 6,293,688). In response, Applicants are amending claim 11 to further clarify the invention and, as the rejection might be applied to the amended claim, respectfully traverse.

Claim 11 as amended recites the limitation of etching a transition region to form vertically tapered regions within an area between closely spaced waveguides. By contrast, the tapered waveguide segments disclosed in Deacon are not within an area between closely spaced waveguides. More specifically, Deacon teaches that the tapered waveguide segments (reference characters 126, 128 in Figure 5) are disposed on top of waveguide segments (122, 124) and butt coupled to laser waveguides (112, 114). Since both the waveguide segments (122, 124) and the tapered waveguide segments (126, 128) thereon are disposed adjacent the laser waveguides (112, 114) and any possible area between the waveguide segments (126, 122, 128, 124) and the laser waveguides (112, 114) at the butt coupling is filled with air, vacuum, or a material with a selected index of refraction (See, col. 8, lines 37-52), the tapered regions taught in Deacon (i.e., the tapered waveguide segments 126, 128) are not within an area between any waveguides.

Accordingly, Deacon fails to teach each and every limitation of amended claim 11 and therefore cannot anticipate that claim. Applicants therefore submit that amended claim 11 is in condition for allowance and respectfully requests withdrawal of the § 102(b) rejection of claim 11.

Rejections under 35 U.S.C. § 103(a)

In paragraph 8 of the Office Action, the Examiner rejected claims 1-3 and 5-6 as being obvious in view of Deacon in combination with Kashihara (US 6,563,986).

Applicants submit that claims 1-3 and 5-6 are patentable in view of Deacon in combination with Kashihara based at least on the traversal described above regarding amended claim 11, upon which claims 1-3 and 5-6 depend. Specifically, Kashihara, like Deacon, also fails to disclose or suggest any vertically tapered regions within an area between closely spaced waveguides and therefore does not overcome the deficiencies of Deacon set forth above. Thus, Kashihara and Deacon, either alone or in combination, fail to teach, show, or suggest each and every limitation in each of claims 1-3 and 5-6. This failure precludes Deacon and/or Kashihara from rendering any of these claims obvious. For the foregoing reasons, Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of claims 1-3 and 5-6.

In paragraph 9 of the Office Action, the Examiner rejected claim 4 as being obvious in view of Deacon and Kashihara in further combination with Merry (US 6,015,761). Applicants submit that claim 4 is patentable in view of Deacon and Kashihara in further combination with Merry based at least on the traversal described above regarding amended claim 11, upon which claim 4 depends. Again, Kashihara and Deacon fail to teach, show, or suggest etching a transition region to form vertically tapered regions within an area between closely spaced waveguides. Merry also fails to make such a teaching or suggestion and therefore does not cure

this deficiency. Thus, Applicants respectfully request withdrawal of the § 103(a) rejection and allowance of claim 4.

#### Claims 12-22

Claim 12 is dependent on claim 4. Based at least on the traversal presented above regarding claim 4, Applicants submit that claim 12 is allowable over the cited references and therefore respectfully request allowance of claim 12.

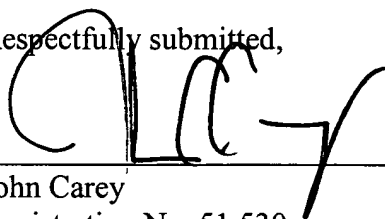
Claim 13 recites the limitation of etching at least a transition region of an optical layer with a reactive ion etch, wherein a distance separating each of the waveguides within an array of waveguides along the transition region is selected such that the etching forms vertically tapered regions connecting sides of two adjacent waveguides. This limitation is not taught in the cited references. Thus, Applicants respectfully request allowance of claims 13 and claims 14-17 dependent thereon.

Claim 18 recites etching at least a transition region of an optical layer with a reactive ion etch, wherein the etching forms vertically tapered regions connecting sides of two adjacent waveguides within an array of waveguides due to a selected distance separating each of the waveguides along the transition region. Again, this limitation is not taught in the cited references. Thus, Applicants respectfully request allowance of claim 18 and claims 19-22 dependent thereon.

**CONCLUSION**

Based on the above remarks, Applicants believe that they have overcome all of the rejections set forth in the Office Action mailed October 23, 2003, and that the pending claims are in condition for allowance. If the Examiner has any questions, please contact the Applicants' undersigned representative at the number provided below.

Respectfully submitted,



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